# Journal of Materials Chemistry C

Materials for optical, magnetic and electronic devices

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**Cover**
See Weikang Wu, Hui Li *et al.*, pp. 6527–6538. Image reproduced by permission of Hui Li from *J. Mater. Chem. C*, 2025, **13**, 6527.

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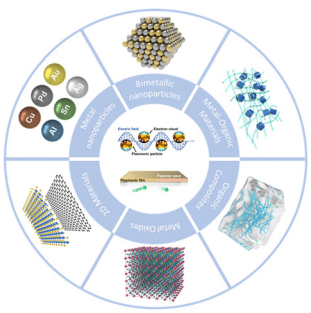
Sung Hwan Cho, Seungwon Choi, Jun Min Suh and Ho Won Jang*

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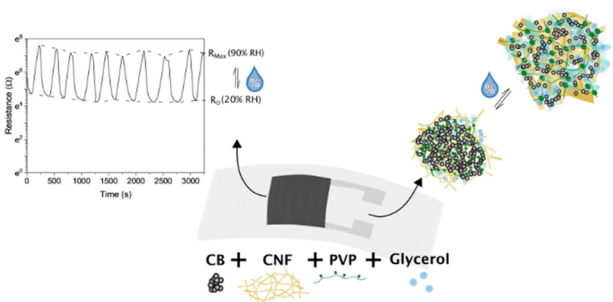
Cláudia Buga and Júlio Viana*



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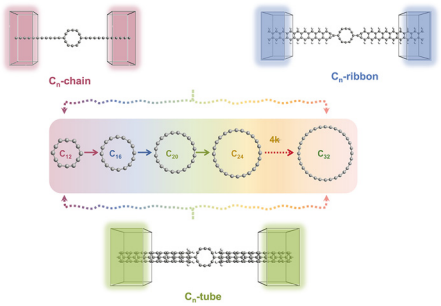
**Nonlinear transport behaviors in anti-aromatic cyclo[*n*]carbon-based (*n* = 4*k*) molecular devices**

Junnan Guo, Wenhui Fang, Jian Huang, Lishu Zhang, Weikang Wu* and Hui Li*

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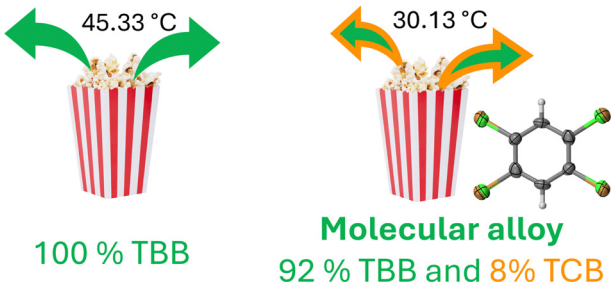
Teodoro Klaser, Oskar Stepančić, Jasminka Popović, Jana Pisk, Luka Pavić, Igor Picek, Dubravka Matković-Čalogović and Željko Skoko*

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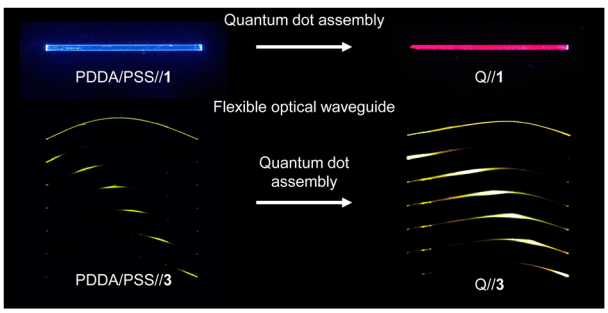
Xuesong Yang, Boyang Gao, Yi Liu, Baolei Tang,* Hao Zhang* and Hongyu Zhang*

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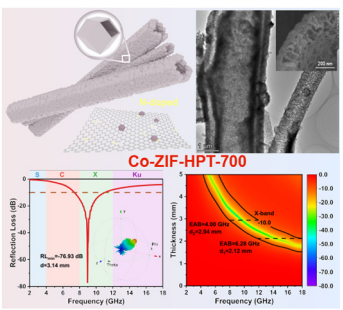
**Hollowing integration engineering to construct MOF-derived carbon composites for lightweight and efficient microwave absorption materials**

Zhe Zhang, Jiewu Cui,* Dongbo Yu, Pengjie Zhang, Wei Sun, Yong Zhang, Song Ma, Xiaohui Liang and Yucheng Wu*



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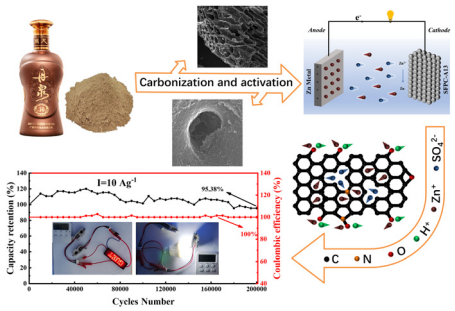


**Transforming biomass waste sauce-flavor liquor lees into porous carbons for high-performance aqueous zinc-ion hybrid capacitors**

Guimei Wei, Ye Tian, Xingning Tang, Weihua Yin, Hongliang Peng,* Lixian Sun,* Guanghua Wang, Fen Xu, Yongjin Zou, Huanzhi Zhang and Ping Cai*

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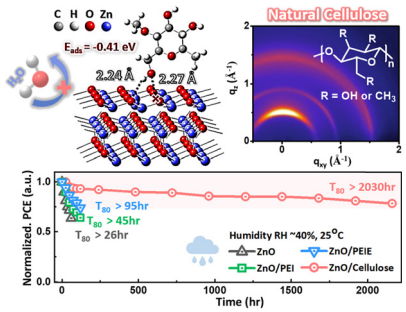


**Boosting the long-term stability of all-polymer solar cells by using natural cellulose as an interlayer**

Guan-Lin Chen, Po-Tuan Chen, Ching-I Huang* and Leeyih Wang*

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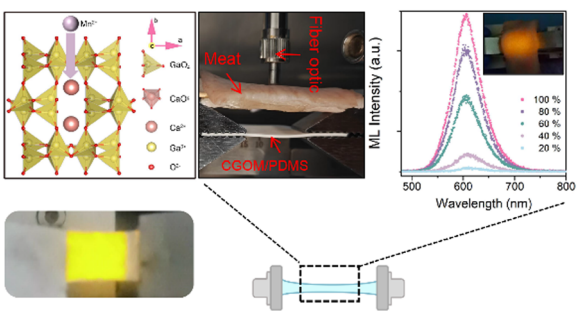


**Intense and repeatable orange mechanoluminescence of $Mn^{2+}$ activated $CaGa_4O_7$ for visualized mechanics sensing**

Yongwen He, Jie Wang, Shaofan Fang,* Junshan Qin, Long Feng, Birong Tian, Shaowei Feng* and Zhaofeng Wang*

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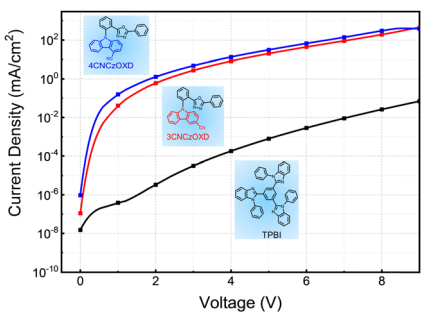


**Carbazole derivatives as electron transport and n-type acceptor materials for efficient organic light-emitting devices**

Shiying Hu, Yaotian Zhang, Jingsheng Wang, Yuying Wu, Yeting Tao, Wenbo Yuan and Youtian Tao*

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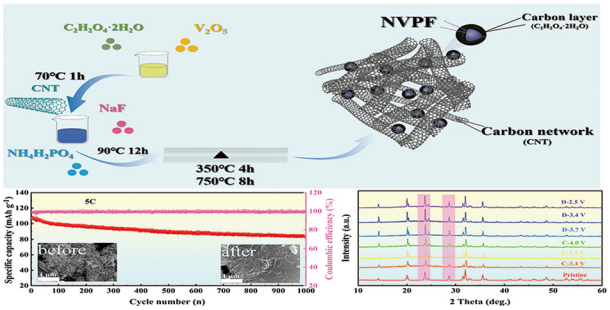
Kang Tang, Hualing Tian, Yanhui Zhang, Yanjun Cai, Hong Du, Mofan Zhu, Xiang Yao* and Zhi Su*

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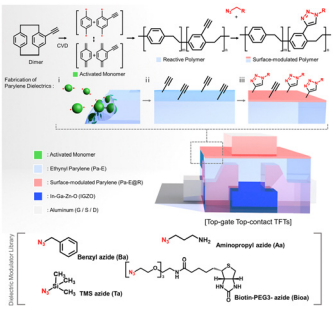
Seong Cheol Jang, Gunoh Lee, Ilhoon Park, Byeongil Noh, Ji-Min Park, Jaewon Lee, Kyung Jin Lee* and Hyun-Suk Kim*

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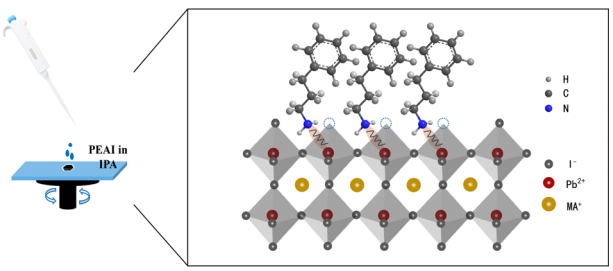
Mingxun Liu, Xinbo Guo, Nianqiao Liu, Changke Jiang, Jian Zhang, Zhaolai Chen and Yu Zhong*

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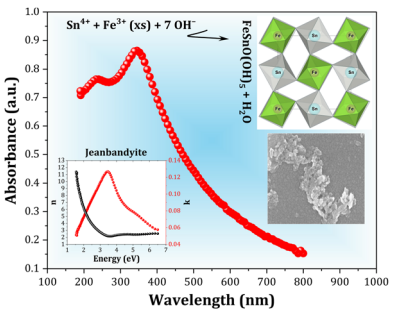
**Linear and non-linear optical properties of $FeSnO(OH)_5$ oxyhydroxide perovskite**

Abdelhadi El Hachmi,* Goutam Biswas, Subhadeep Sen, Bouchaib Manoun, Khalid Draoui and Zouhair Sadoune



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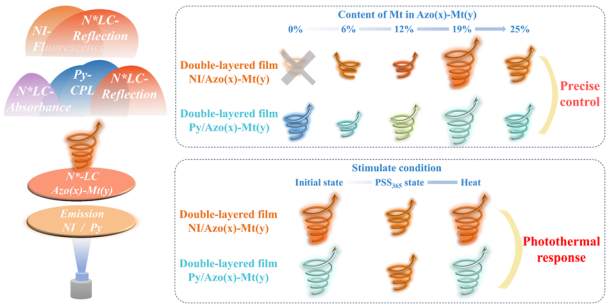


**Photothermal response and precise control of circularly polarized luminescence *via* double-layered films based on cholesteric liquid crystals**

Sha Huang, Qimei Wu, Yongjie Hu, Xincan Wang, Yongjie Yuan* and Hailiang Zhang*

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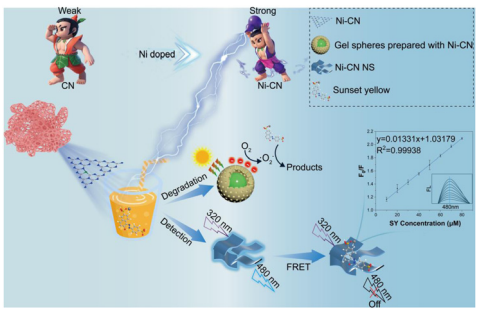


**Coral-like porous tubular Ni doped g-$C_3N_4$ nanocomposites as bifunctional templates for photocatalytic degradation and fluorescence detection of sunset yellow in beverages**

Yue Li, Ping Liu, Shisen Li, Yanting Ren, Wenzhen Du, Wenjing Yin, Haiyan Jiang, Qingli Yang and Yongchao Ma*

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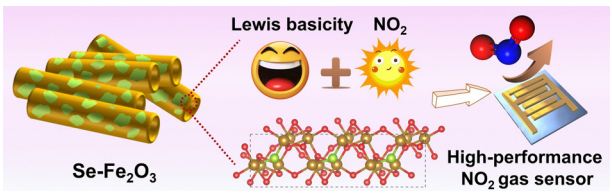


**Selenium-doped hematite (α-$Fe_2O_3$) hollow nanorods for highly sensitive and selective detection of trace $NO_2$**

Tingting Liang, Yan Li, Xu Zhang, Hongwei Bao, Fengnan Li, Xueqian Liu, Zhengfei Dai and Hang Liu*

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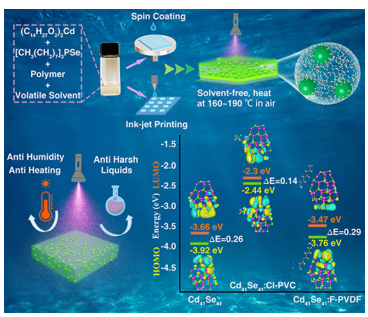


***In situ* synthesis of cadmium selenide quantum dots in solvent-free polymer templates demonstrating stable photoluminescence in a harsh atmosphere**

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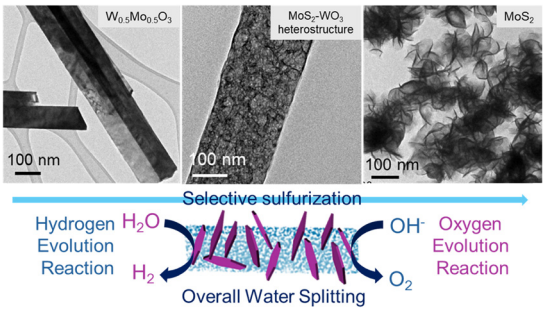
**Transforming $Mo_{0.5}W_{0.5}O_3$ to $MoS_2$: leveraging selective sulfurization for enhanced electrocatalysis**

Naveen Goyal, Gokul Raj, Karuna Kar Nanda and N. Ravishankar*

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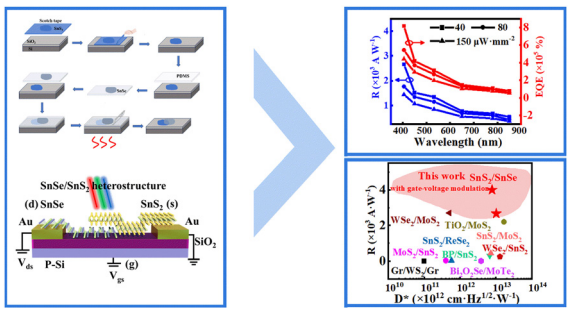
**High-performance visible-to-near infrared phototransistor based on SnSe/$SnS_2$ van der Waals heterostructure**

Gaoning Fan, Weishuai Duan, Mengjiao Dong, Xueting Luo, Pengyu Zhou,* Chun Sun, Yonghui Zhang, Mengjun Wang and Chao Fan*

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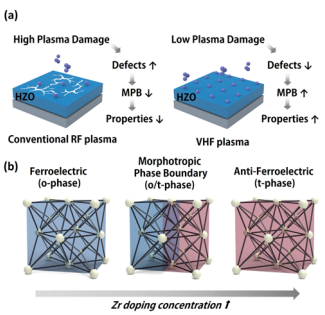
Ketong Yang, Hunbeom Shin, Seungyeob Kim, Taeseung Jung and Sanghun Jeon*

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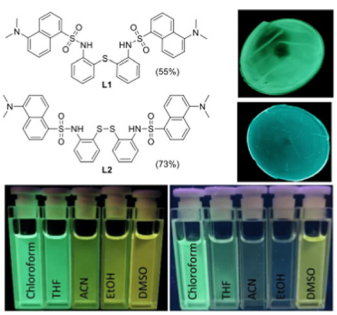
**Design and evaluation of dansyl-derived chemosensors for disulfide-cleavage-triggered detection: photophysical, metal sensing, and thermometric applications**

Igor Lourenço, Frederico Duarte, Georgi M. Dobrikov, Atanas Kurutos,* Ivaylo Slavchev, José Luis Capelo-Martínez, Hugo M. Santos and Carlos Lodeiro*



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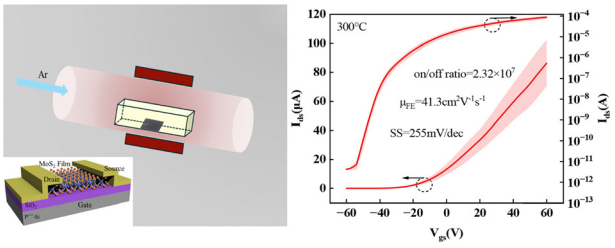


**Reducing $MoS_2$ FET contact resistance by stepped annealing to optimize device performance**

Peng Liu, Xin Lin, Zewen Li, Dianyou Song,* Fang Wang,* Yan Cheng, Sannian Song and Kailiang Zhang*

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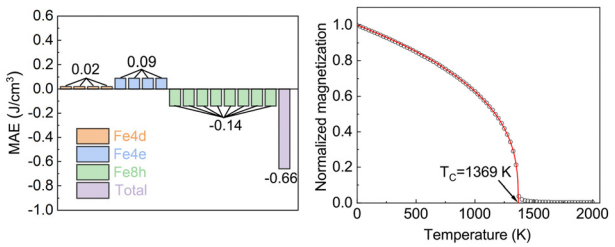


**Electronic structures and magnetic properties of the rare-earth-free permanent magnet α″-$Fe_{16}N_2$: first-principles calculations**

Peirun Duan, Qingming Ping, Douqiang Sun, Qihang Luo, Haojie Li, Haoyu Xu, Xian Liu, Xiaohui Shi* and Lulu Du*

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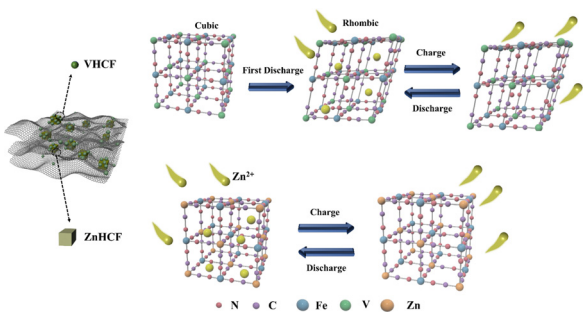


**Conductive network enhanced self-assembled diphasic Prussian blue analogs for aqueous zinc-ion batteries**

Bingbing Hu,* Dongshan Li, Meixin Li, Jiayu Jiang, Ye Zou, Yu Deng, Zideng Zhou, Hong Pu, Guangqiang Ma and Zhi Li*

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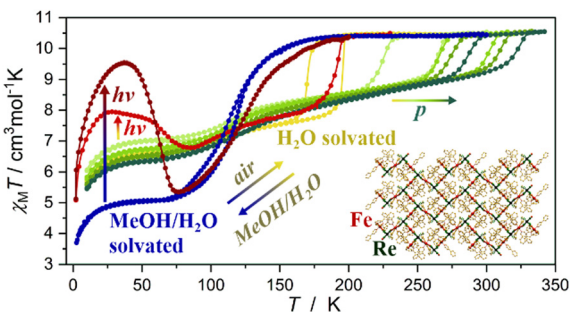


**Chemically driven magnetic responsivity to multiple physical stimuli in a spin-crossover layered iron(II)–rhenium(V) framework**

Tomasz Charytanowicz, Michał Heczko, Katarzyna Dziedzic-Kocurek, Dawid Pinkowicz, Shin-ichi Ohkoshi, Szymon Chorazy* and Barbara Sieklucka*

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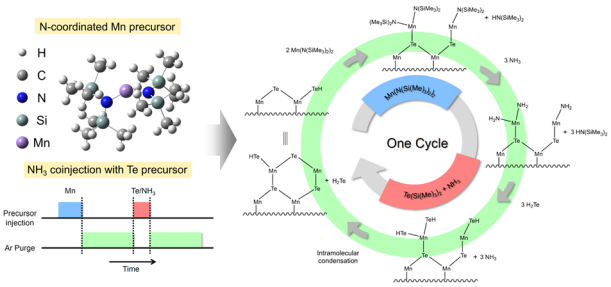
**Low-temperature atomic layer deposition of metastable MnTe films for phase change memory devices**

Gwangsik Jeon, Jeongwoo Jeon, Woohyun Kim, Daehyeon Kim, Wontae Noh, Wonho Choi, Byongwoo Park, Sangmin Jeon, Sungjin Kim, Chanyoung Yoo* and Cheol Seong Hwang*

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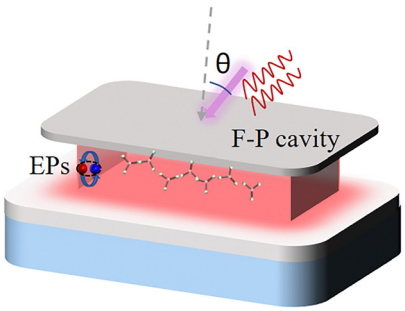
**Polariton emission properties of an organic dye-doped polymer microcavity**

Lulu Xue, Ziyang Chen, Yatong Zhang, Xiaoya Yan, Liang Zhao, Pengxue Jia, Bo Gao* and Hongyan Shi*

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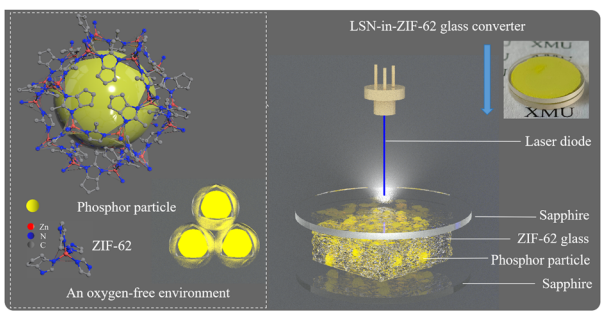
**Fabrication of loss-less $La_3Si_6N_{11}:Ce^{3+}$ phosphor-in-glass color converters using oxygen-free ZIF-62 glass**

Taoli Deng, Zan Ding, Shuang Zheng and Rong-Jun Xie*

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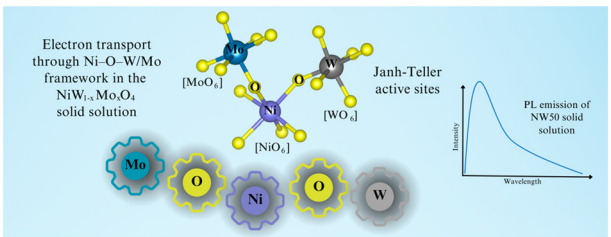
**Disentangling the structure, optical properties, and photoluminescence emissions of $NiW_{1-x}Mo_xO_4$ ($x$ = 25, 50, and 75%) solid solutions: experimental and DFT studies**

Amanda Fernandes Gouveia,* Marcelo Assis, Lara Kelly Ribeiro, Eduardo de Oliveira Gomes, Marcio Daldin Teodoro, Elson Longo and Juan Andrés*



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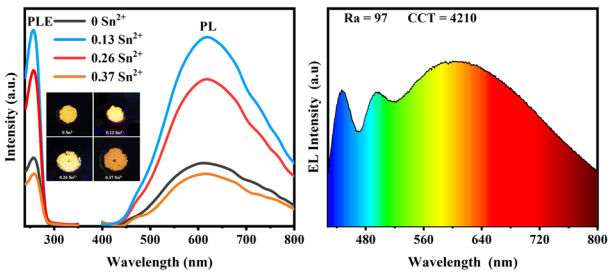


**Highly efficient orange luminescence in $Sn^{2+}$-doped $Cs_2AgInCl_6$ double perovskite with a large Stokes shift**

Jingrui Guo, Jing Guo,* Yuchen Peng, Jiajia Wang, Weidan Ma, Na Zhang, Yan Zhang, Yufeng Liu* and Yongzheng Fang*

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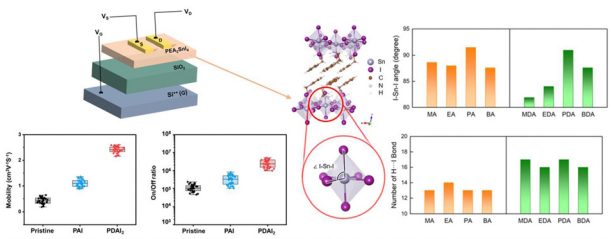


**Alkylammonium passivation for 2D tin halide perovskite field-effect transistors**

Hakjun Kim, Cheong Beom Lee, Bum Ho Jeong, Jongmin Lee, Jia Choi, Kyeounghak Kim* and Hui Joon Park*

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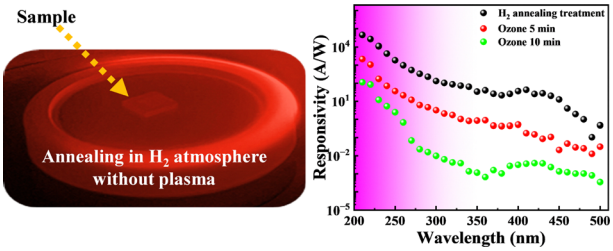


**Photo-response performance regulation of a type-Ib diamond-based photodetector by $H_2$ annealing and ozone treatment**

Keyun Gu, Zilong Zhang, Takeo Ohsawa, Masataka Imura, Jian Huang,* Yasuo Koide and Meiyong Liao*

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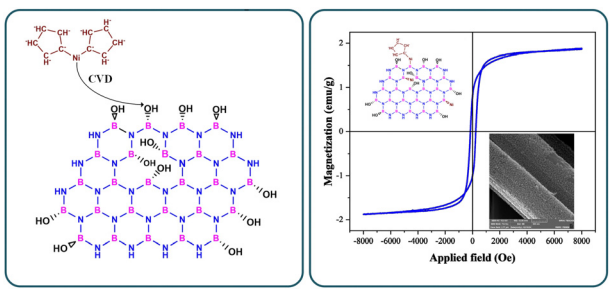


**Nickel-deposited hexagonal boron nitride composites synthesized *via* chemical vapor deposition: unlocking enhanced magnetic properties for advanced technologies**

Samira Mehravar, Benyamin M. Garmejani and Shohreh Fatemi*

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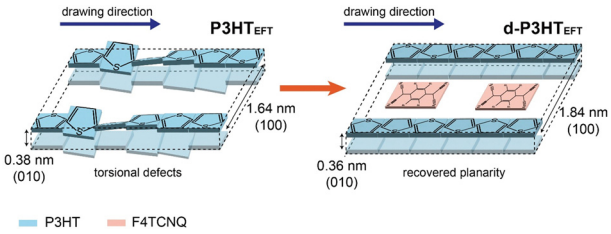
**Self-healing of defects in uniaxially aligned semiconducting polymer crystals *via* molecular doping: insights into crystallization from transient *vs.* settled amorphous phases**

Hokyeong Jeong, Sangwon Eom, Sanghoon Cho, Thanh Van Vu, Jae Hyun Sim, Jinwoo Choi, Seungjoo Park, Sangho Kim, Sangeun Baek, Hyunmin Lee, Hoeil Chung and Youngjong Kang*

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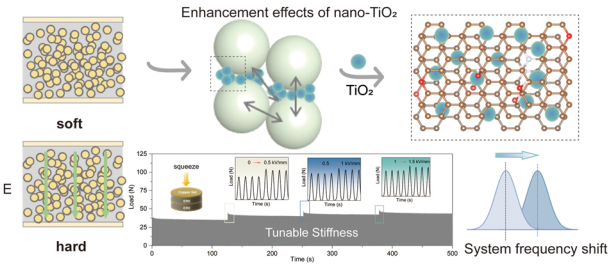
**Electrorheological elastomer for simultaneous enhancements in durability and micro-vibration suppression**

Sai Chen, Leizhi Wang, Ke Zhang,* Wen Bai and Yao Li

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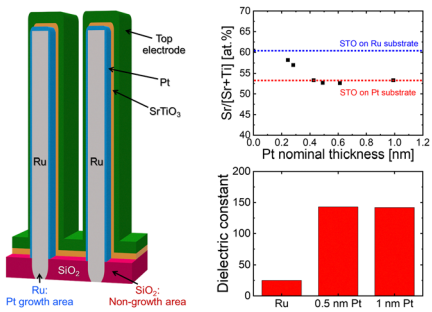
**Enhancing the crystallinity and dielectric performance of ALD-grown $SrTiO_3$ films by introducing a sub-nm-thick Pt layer**

Hong Keun Chung, Jihoon Jeon, Seungwan Ye, Sung-Chul Kim, Sung Ok Won, Tae Joo Park and Seong Keun Kim*

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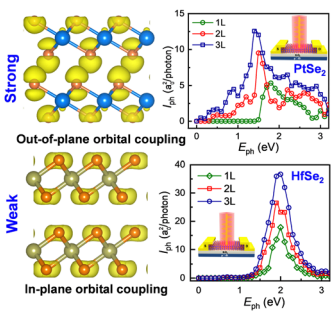
**Unraveling the interlayer coupling effect on layer-dependent electronic and optoelectronic properties in two-dimensional semiconductors**

Zeqi Hua, Haibo Shu,* Dabao Xie, Zehao Liu, Jiayu Liang,* Jing Zhou, Xiaoshuang Chen and Dan Cao



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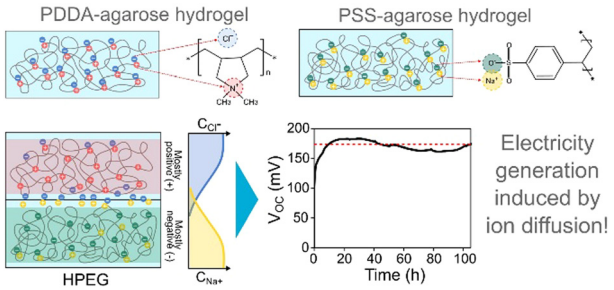


## A hydrogel-ionic polymer blend for humidity-insensitive ion gradient driven electricity generation

Byeunggon Kim, Paniz Faramarzi, Jeong Hyo Kim, Wonik Jang, Youngmin Yoo* and Jae Bem You*

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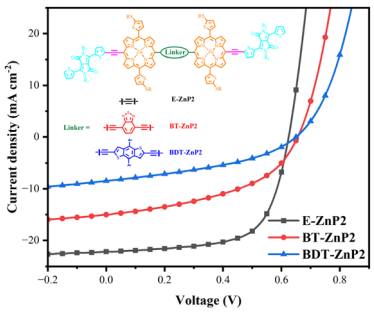
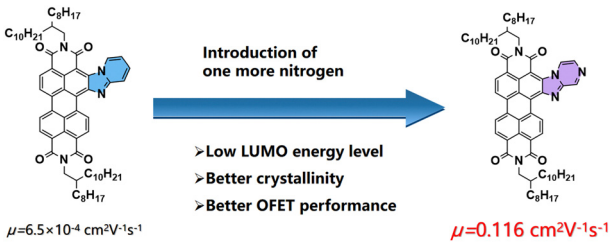



## Impacts of linking units of porphyrin dimer donors on the performance of organic solar cells

Hanping Wu, Jifa Wu, Feng Tang, Lin Yuan, Yinchun Guo, Yumeng Li and Xiaobin Peng*

6888




## *ortho*-π-Extension of perylene diimides *via* one-pot annulation of imidazo[1,2-*a*]pyridine or imidazo[1,2-*a*]pyrazine for n-type organic field-effect transistors

Yinxiang Liao, Cui Wang, Luyao Dai, Guangwei Shao, Xingyu Chen, Di Wu* and Jianlong Xia*

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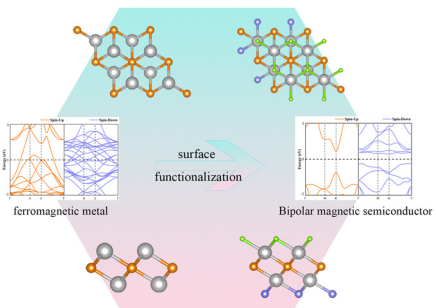


## Engineering the electronic structures and ferromagnetism of $Fe_2C$ monolayers *via* surface functionalization

Xiaolong He, Yaya Lou, Dongni Wu and Jing Xie*

PAPERS

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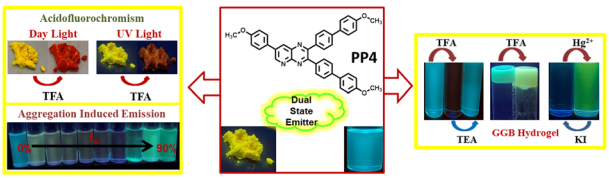
**AIEE active dual-state emissive tripodal pyridopyrazine derivatives as multi-stimuli responsive smart organic materials**

Monika Lamoria, Debashree Manna and Marilyn Daisy Milton*

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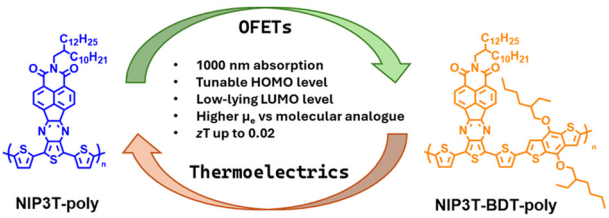
**Low-bandgap oligothiophene-naphthalimide oligomeric semiconductors for thermoelectric applications**

Matías J. Alonso-Navarro, Osnat Zapata-Arteaga, Sergi Riera-Galindo, Jiali Guo, Aleksandr-Peredeventsv, Edgar Gutiérrez-Fernández, Juan Sebastián Reparaz, Mar Ramos, Christian Müller, Jaime Martín, Marta Mas-Torrent, José L. Segura* and Mariano Campoy-Quiles*

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**Promotion of electrochemical reduction of $CO_2$ over the $Cu_2O$–Cu(111) interface assisted by oxygen vacancies**

Shuang Xu, Lei Yang, Congya Wang, Liwei Pan, Jing Zhang, Yaling Wang and Hexiang Zhong*